

## Electronic Acknowledgement Receipt

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| <b>EFS ID:</b>                              | 6930963                                 |
| <b>Application Number:</b>                  | 10616659                                |
| <b>International Application Number:</b>    |   |
| <b>Confirmation Number:</b>                 | 9959                                    |
| <b>Title of Invention:</b>                  | Method for determining gene knockouts   |
| <b>First Named Inventor/Applicant Name:</b> | Costas D. Maranas                       |
| <b>Customer Number:</b>                     | 27407                                   |
| <b>Filer:</b>                               | John Darrell Goodhue/Patricia E. Wilson |
| <b>Filer Authorized By:</b>                 | John Darrell Goodhue                    |
| <b>Attorney Docket Number:</b>              | P06367US03                              |
| <b>Receipt Date:</b>                        | 02-FEB-2010                             |
| <b>Filing Date:</b>                         | 09-JUL-2003                             |
| <b>Time Stamp:</b>                          | 14:42:32                                |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)             |

### Payment information:

|  |                 |
|--|-----------------|
| Submitted with Payment                   | yes             |
| Payment Type                             | Deposit Account |
| Payment was successfully received in RAM | \$180           |
| RAM confirmation Number                  | 10758           |
| Deposit Account                          | 260084          |
| Authorized User                          |                 |

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

**File Listing:**

| Document Number | Document Description | File Name  | File Size(Bytes)/Message Digest                        | Multi Part /.zip | Pages (if appl.) |
|-----------------|----------------------|--|--|------------------|------------------|
| 1               |                      | MARANAS_P06367US03_IDS-SB08a-with-Statement_02-02-10_JDG.pdf | 921757<br>c0c580ae0d44a760d29ca945c475b21e643<br>9ccdf | yes              | 21               |

**Multipart Description/PDF files in .zip description**

| Document Description                                 | Start | End |
|--|-------|-----|
| Miscellaneous Incoming Letter                        | 1     | 2   |
| Transmittal Letter                                   | 3     | 4   |
| Information Disclosure Statement (IDS) Filed (SB/08) | 5     | 21  |

**Warnings:**
**Information:**

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| 2 | Foreign Reference | 0_JP2000268018A.pdf | 715616<br>33cb1dbf23b1c305e65d91f82a985d97446<br>7ef47 | no | 13 |
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**Warnings:**
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| 3 | Foreign Reference | 0_WO_1998_18814.pdf | 9547365<br>f3ed4fd224c80e8891df50afe862357441f2f<br>412 | no | 58 |
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| 4 | Foreign Reference | 0_WO_2000_18906.pdf | 15888141<br>39571a2c7b4a664f6dc5b952b4817ddd987<br>94304 | no | 92 |
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| 5 | Foreign Reference | 0_WO_2000_42559.pdf | 12295771<br>21072cfbd308629b47b0e8b2e01bf8aaa23<br>08426 | no | 66 |
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| 6 | Foreign Reference | 0_WO_2001_90346.pdf | 21702846<br>18bea6f8b35d2da93c3dfe765192029e548<br>6e864 | no | 139 |
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| 7 | Foreign Reference | 0_WO_2004_018621.pdf | 5017398<br>3eeb3047b6cbfd4a5520846cb377b0b600<br>aae97 | no | 32 |
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| 8                   | NPL Documents | 7-Arigoni_NatureBiotechnology-1998.pdf                      | 1154738<br>8e34337225d4541bcbcc846843a7e5823cc<br>334f4 | no | 6  |
| <b>Warnings:</b>    |               |   |   |    |    |
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| 9                   | NPL Documents | 8-A-Aristidou_Modification-of-Central-Metabolic-Pathway.pdf | 2125302<br>b6f2f4e9404645258c32b856d07e42a51ad<br>9fe4c | no | 8  |
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| 10                  | NPL Documents | 10-Arita_Sim-Prac-Theor_2000.pdf                            | 2137812<br>e3aab0bcec643ac73e644aafbe4d253a6c7c<br>a63b | no | 17 |
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| 11                  | NPL Documents | 9-Arita_Proc-Natl-Acad-Sci-2004.pdf                         | 1482932<br>ca1dd1411c2fa794f13733c921bcc6ababb<br>78a2  | no | 5  |
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| 12                  | NPL Documents | 13-Bailey-Gribskov_Bioinformatic_1998.pdf                   | 1513791<br>9eb22dce45a63f6949c0be6e597817789b<br>dd686  | no | 7  |
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| 13                  | NPL Documents | Bhaskar_Applications_RevChemEng2000.pdf                     | 9668896<br>64e11dd224ac26ebf0e9509effdd9f38d0db<br>75de | no | 72 |
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| 14                  | NPL Documents | Blattner_Complete_Genome_Science_1997.pdf                   | 2046494<br>7094f557795dba09cc867028567667f49d<br>439ca  | no | 10 |
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| 15                  | NPL Documents | BogaradAndDeem_hierarchical_ProcNatlAcadSci1999.pdf         | 2749405<br>d8cf6dd67478382b97c766750a036bea0<br>959ba   | no | 5  |
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| 16                  | NPL Documents | Bond_Electricity_prod_Microbial_2003.pdf                    | 620767<br>f3699df895d755918f99c46971a531117551<br>0a62  | no | 8  |

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| 17                  | NPL Documents | Burgard_Optimization_Biotech<br>nolBioeng2003.pdf         | 1782173<br>41eed578119c41f131abe7383806fd211ccb<br>ef24 | no | 8  |
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| 18                  | NPL Documents | Burgard_1Optknock_Biotechn<br>olBioeng2003.pdf            | 2578037<br>8247239231fbbab2226ac60ed3b82b08e9<br>711ad  | no | 11 |
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| <b>Information:</b> |               |   |   |    |    |
| 19                  | NPL Documents | Castellanos_Modular_Min_Pro<br>cNatl2004.pdf              | 2003735<br>91b9089607485260ef5abebe3812ece96d3<br>f6aad | no | 6  |
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| 20                  | NPL Documents | Causey_Engineering-<br>Escherichia-coli-for-efficient.pdf | 1920042<br>cf533e459387679a95aa321bbcc29061882<br>72198 | no | 6  |
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| 21                  | NPL Documents | Chen_Computer_Program_Bio<br>Techniques1997.pdf           | 610879<br>49f462a94d19eff5c3f0414019cc62ae7522a<br>6ab  | no | 3  |
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| 22                  | NPL Documents | Chistoserdova_C1_transfer_en<br>zymes_1998.pdf            | 1455481<br>af4fcc3787c81c5cce83c30cfb6034bce19a<br>e5a  | no | 5  |
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| 23                  | NPL Documents | Cho_1Ethical-<br>considerations_Science_1999.<br>pdf      | 1442462<br>19a5a859c14ebf58f8925883b13000cd9687<br>12d0 | no | 10 |
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| <b>Information:</b> |               |   |   |    |    |
| 24                  | NPL Documents | Covert_Metabolic_modeling_T<br>rendsBiochemSci2001.pdf    | 2685425<br>3b5bbb57abc5107692a6a2e1edbebe0f0b6<br>0bf43 | no | 8  |
| <b>Warnings:</b>    |               |   |   |    |    |
| <b>Information:</b> |               |   |   |    |    |
| 25                  | NPL Documents | Das_Characterization_of-a-<br>Corrinoid-Protein.pdf       | 5229013<br>173138d73c63fbce61a517c05cb5d592f443<br>bbaf | no | 10 |

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| 26                  | NPL Documents | David_Reconstruction-of-the-central_Eur-J-Biochem_2003.pdf      | 2925980<br>cb867ab71c5e810523f08255f785d3ee0918<br>a340 | no | 11 |
| <b>Warnings:</b>    |               |   |   |    |    |
| <b>Information:</b> |               |   |   |    |    |
| 27                  | NPL Documents | Delgado_Identifying-Rate-controlling_BiotechnolProg_1991.pdf    | 548290<br>75e6349232caa015f45dc373030f0089cabcb74       | no | 6  |
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| 28                  | NPL Documents | Demain_Stunning_Achiev_ASMNews1999.pdf                          | 1521299<br>38928d78c309e18b8380d85ff59d3d9a08e<br>6b665 | no | 10 |
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| 29                  | NPL Documents | Edwards_HowWill_BiotechnolBioeng1998.pdf                        | 2347638<br>4cc22dfc62430d24de83532df3f08b9155cb<br>45f0 | no | 8  |
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| 30                  | NPL Documents | 31-EdwardsAndPalsson_Metabolic-Flux_BMC-Bioinformatics_2000.pdf | 2101421<br>aab6b1ac68609ed434172da2d9c3ac40676<br>4bc4e | no | 10 |
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| 31                  | NPL Documents | 33-Ellis_Univ-Minn-Biocatalysis_Nucl-Acids-Res_2003.pdf         | 768286<br>074b2b5598f046d5c802dbccc0d0a15783d<br>26311  | no | 4  |
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| 32                  | NPL Documents | Eppstein_Finding_35thIEEESymp_1994.pdf                          | 3083001<br>9b8fe8f42cc227f51e59678ae2e8605a284<br>c3ed  | no | 12 |
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| 33                  | NPL Documents | Fisher_The_Langragean_ManageSci1981.pdf                         | 462674<br>59660ad1f05c8c27eec4eb5421bd2fd27ce0<br>340d  | no | 2  |
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| 34                  | NPL Documents | Geoffrion_Lagrangean_relax_MatProgramStud1974.pdf               | 5463257<br>fc657494460cd19471ddb2ac3ce8c049d25<br>1a483 | no | 34 |

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| 35                  | NPL Documents | HenrikSEN_Growth-energetics-and-metabolic-fluxes.pdf           | 4191516<br>bc66a59d6fcf71928d758b165deb570e578<br>807c3 | no | 16 |
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| 36                  | NPL Documents | Hugler_Malonyl_Coenzyme_JBacteriol2002.pdf                     | 1839992<br>522f19648bf486a47851d1ff297ccac645b3<br>17fa | no | 7  |
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| 37                  | NPL Documents | Hutchinson_Global-transposon_Science_1999.pdf                  | 1585304<br>5ec9b3c/c04554aef076f9462d08364e862<br>8677  | no | 5  |
| <b>Warnings:</b>    |               |  |   |    |    |
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| 38                  | NPL Documents | Itaya_An-estimation-of-minimal-genome_FEBS-Lett_1995.pdf       | 282502<br>7b3924b7e0a33cb457039f1caf1275953395<br>37df  | no | 4  |
| <b>Warnings:</b>    |               |  |   |    |    |
| <b>Information:</b> |               |  |   |    |    |
| 39                  | NPL Documents | Jorgensen_Metabolic-flux-distributions_BiotechnolBiog_1995.pdf | 1259051<br>310d3fdc77217dcab29968de351aac6b1fe<br>d41b  | no | 15 |
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| 40                  | NPL Documents | Kanehisa_KEGG-kyoto-encyclopedia_Nucl-Acids-Res_2000.pdf       | 718965<br>87e1d5fb0c8913e4a23ccfd70fa327c2e846<br>5a05  | no | 4  |
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| 41                  | NPL Documents | Kanehisa_The-KEGG-resource_Nucl-Acids-Res_2004.pdf             | 62021<br>5a6ee9acf371434648f6c511e0eb5100bd97<br>adcd   | no | 4  |
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| 42                  | NPL Documents | Karp_Ecocyc_Encyclopedia_Nucl-Acids-Res_1999.pdf               | 877368<br>1086ec589cbe46edc52db67c6756994d0c1<br>dd847  | no | 4  |
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| 43                  | NPL Documents | Karp_TheEcoCyc-and-MetaCyc_Nucleic-Acids-Res_2000.pdf          | 964904<br>46d9ccbc74f7008fc2e7845faa978e4a18e1<br>8023  | no | 4  |

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| 44                  | NPL Documents | Karp_The-EcoCyc-<br>Database_Nucl-Acids-<br>Res_2002.pdf                 | 536983<br>bba12c2c57f50f58f075b568e9c1af451d2<br>1020   | no | 3  |
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| 45                  | NPL Documents | Kataoka_Studies_in_hydrogen<br>_WatSciTech1997.pdf                       | 1196354<br>c58ae1f07763980afb3547c3c3201763ce22<br>7c69 | no | 7  |
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| 46                  | NPL Documents | Kauffman_Advances_in_flux_C<br>urrOpinBiol2003.pdf                       | 1341290<br>22336bd1e0fe56c649e38221c7169e33572<br>6e081 | no | 6  |
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| 47                  | NPL Documents | 53-Keasling_Engineering-<br>Polyphosphate_Biotechnol-<br>Bioeng_1998.pdf | 2264028<br>4287c97f49b9176017be4cd8c461fb0499<br>d5448  | no | 9  |
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| 48                  | NPL Documents | 56-Korotkova_Poly-beta-<br>hydroxybutyrate_J-<br>Bacteriol_2002.pdf      | 2251445<br>674c4c45969ca166f8c10609c384897b4c77<br>6f9d | no | 8  |
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| 49                  | NPL Documents | 57-Krieger_MetaCyc_Nucl-<br>Acids-Res_2004.pdf                           | 1084903<br>3593a885b511f3463166bb21ee8272c9bd<br>b308d  | no | 5  |
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| 50                  | NPL Documents | Lovely_Cleaning-up-with-<br>Genomics.pdf                                 | 4502189<br>9116d881782f9c6b365184f6ce9a8796d84<br>85001 | no | 10 |
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| 51                  | NPL Documents | Lutz_Creating_multiple-<br>crossover_ProcNatlAcadSci200<br>1.pdf         | 1850113<br>696ac95437bfa8c41a54456c0f360cb0f67e<br>0285 | no | 6  |
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| 52                  | NPL Documents | Mavrovouniotis_Synthesis-of-<br>Biochemical-Production.pdf               | 3632236<br>e743514725966b4783dd78885472352da<br>9237b9  | no | 15 |

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| 53                                  | NPL Documents           | 63-Mavrovouniotis_Computer-aided-synthesis_Biotechnol-Bioeng_1990.pdf | 4123860<br>a30c4a58ea0a0eb3519bfb8ae29ebafc1302a224 | no        | 14 |
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| 54                                  | NPL Documents           | 64-McShan_PathMiner_Bioinformatics_2003.pdf                           | 1785913<br>cce1e4fa37ebb29cf48a84bcf3d5bb3acbd4a4   | no        | 7  |
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| 55                                  | NPL Documents           | 65-Methe_Genome-of-Geobacter_Science_2003.pdf                         | 1674517<br>3fcf18566c41d4b5f6ba957986e2fba511aaddfb | no        | 3  |
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| 56                                  | NPL Documents           | 66-Misawa_Production-of-beta-carotene_Appl-Environ-Microbiol_1991.pdf | 858448<br>72c30eb61f92de64cb8d3015333aff0cc4088604  | no        | 3  |
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| 57                                  | NPL Documents           | MooreAndMaranas_Modeling-DNA_JTheorBiol2000.pdf                       | 3712548<br>b4d0dfc8f622e2290b475205cf7d451f941b54fb | no        | 21 |
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| 58                                  | NPL Documents           | Moore_Predicting_crossover_ProcNatlAcadSci2001.pdf                    | 2940576<br>5c1eb9f43dec8ad4789f0f1bdefacca1958d84e8 | no        | 6  |
| <b>Warnings:</b>                    |                         |   |   |           |    |
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| 59                                  | Fee Worksheet (PTO-875) | fee-info.pdf  | 29991<br>7784e37a95d0d727720270d6a0ad530ed0a2d7e8   | no        | 2  |
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**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.